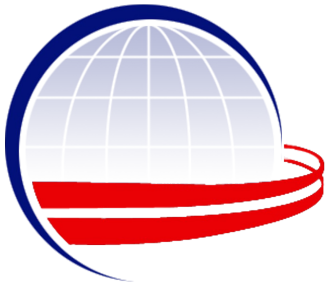
CDIX: The Devils in the Details

Les Owens – Horizontal Fusion Management Team

NDIA Conference – Denver

24 March 2004



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"The secret of success is constancy to purpose."

Benjamin Disraeli, 1804 - 1881
British Prime Minister and novelist

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Outline

- Introduction to Cross-Domain – the Challenge
- Statement of Need – Warfighter example
- Some of the Challenges – the Devils in the Details
- Key CDIX Security Requirements
- Tactical Scenario – Data to and from the Warfighter
- The Horizontal Fusion CDIX Strategy
- Vision for Cross-Domain Information Exchange
- Discussion

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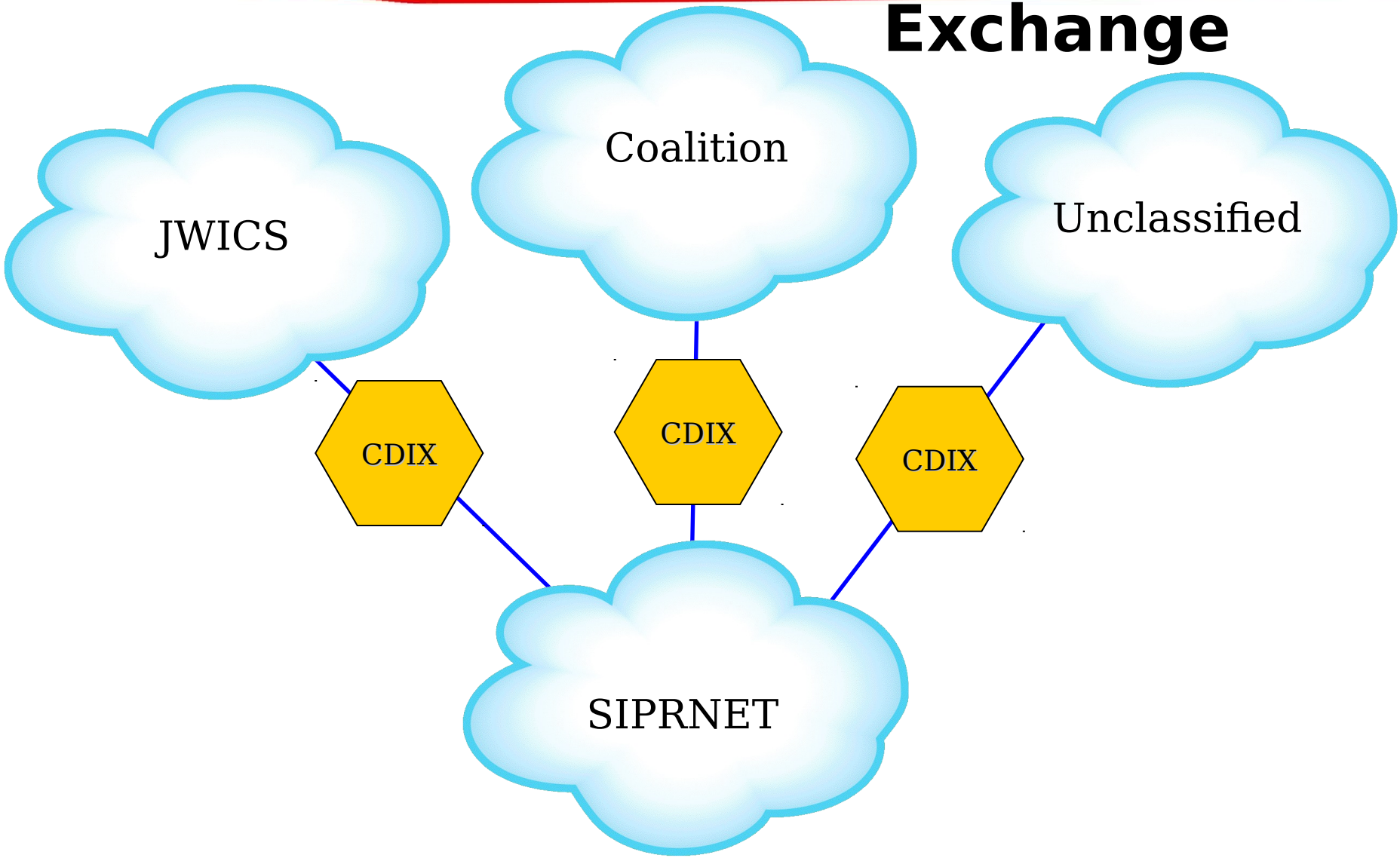
Cross-Domain Information Exchange



Statement of Need – Warfighter Example

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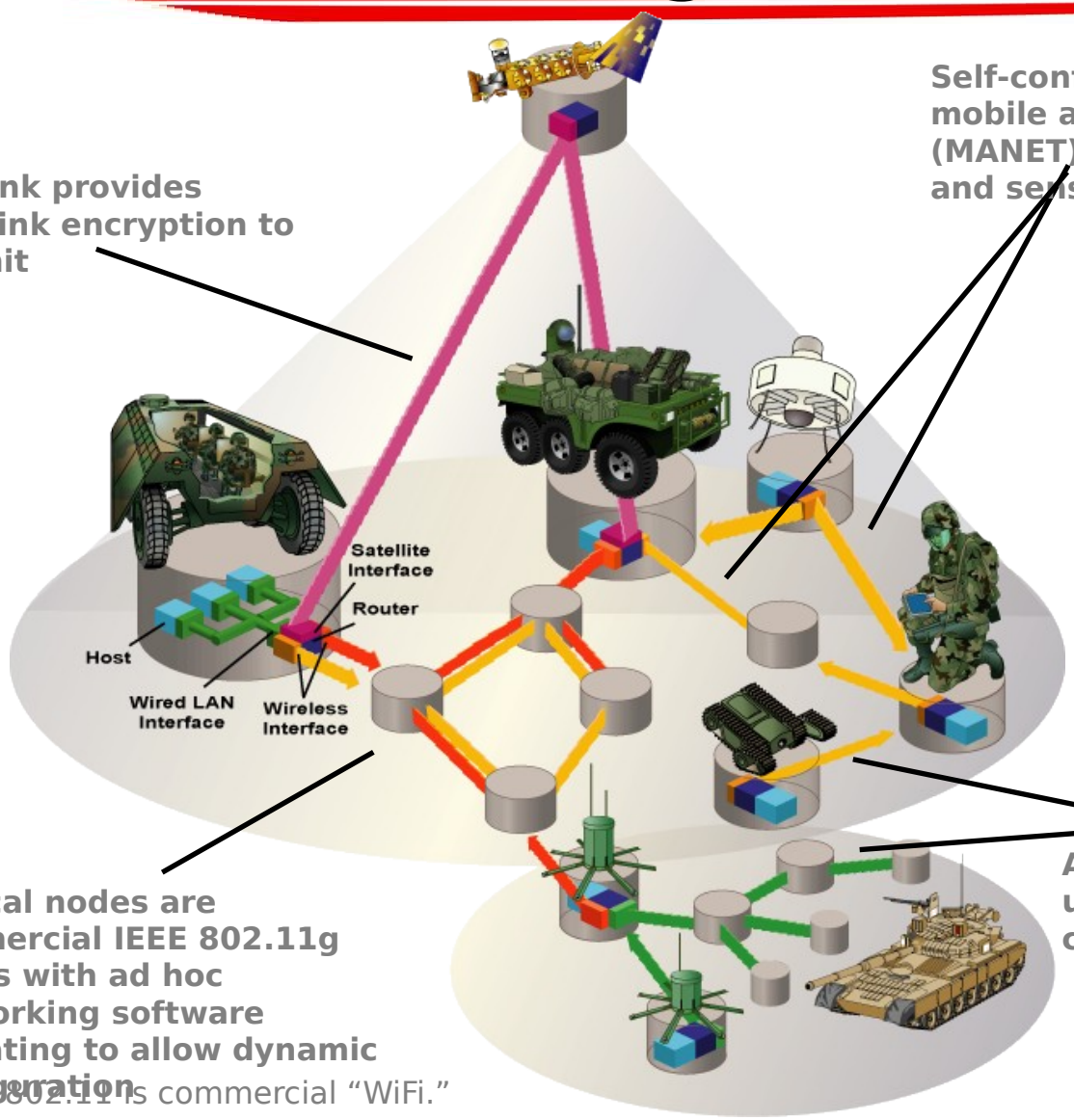
Satellite link provides TACLANE link encryption to tactical unit

Self-configuring, dynamic, mobile ad hoc network (MANET) connecting soldiers and sensors



Tactical nodes are commercial IEEE 802.11g radios with ad hoc networking software operating to allow dynamic configuration

All connections protected using embedded cryptography

Note: 802.11 is commercial "WiFi."

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Some of the Challenges – the Devils in the Details

- Understanding the security policies that dictate requirements for CDIX
- Understanding technical security countermeasures that must be deployed in an environment
- Understanding how new and evolving standards and technologies can address the problem
- Determining how potential existing and emerging solutions for automated CDIX can be used
- Developing an architectural solution and CONOPS in a particular environment
- Placement of security functions and performance
- Time required for security testing and C&A
- Breaking away from “the way its been done”

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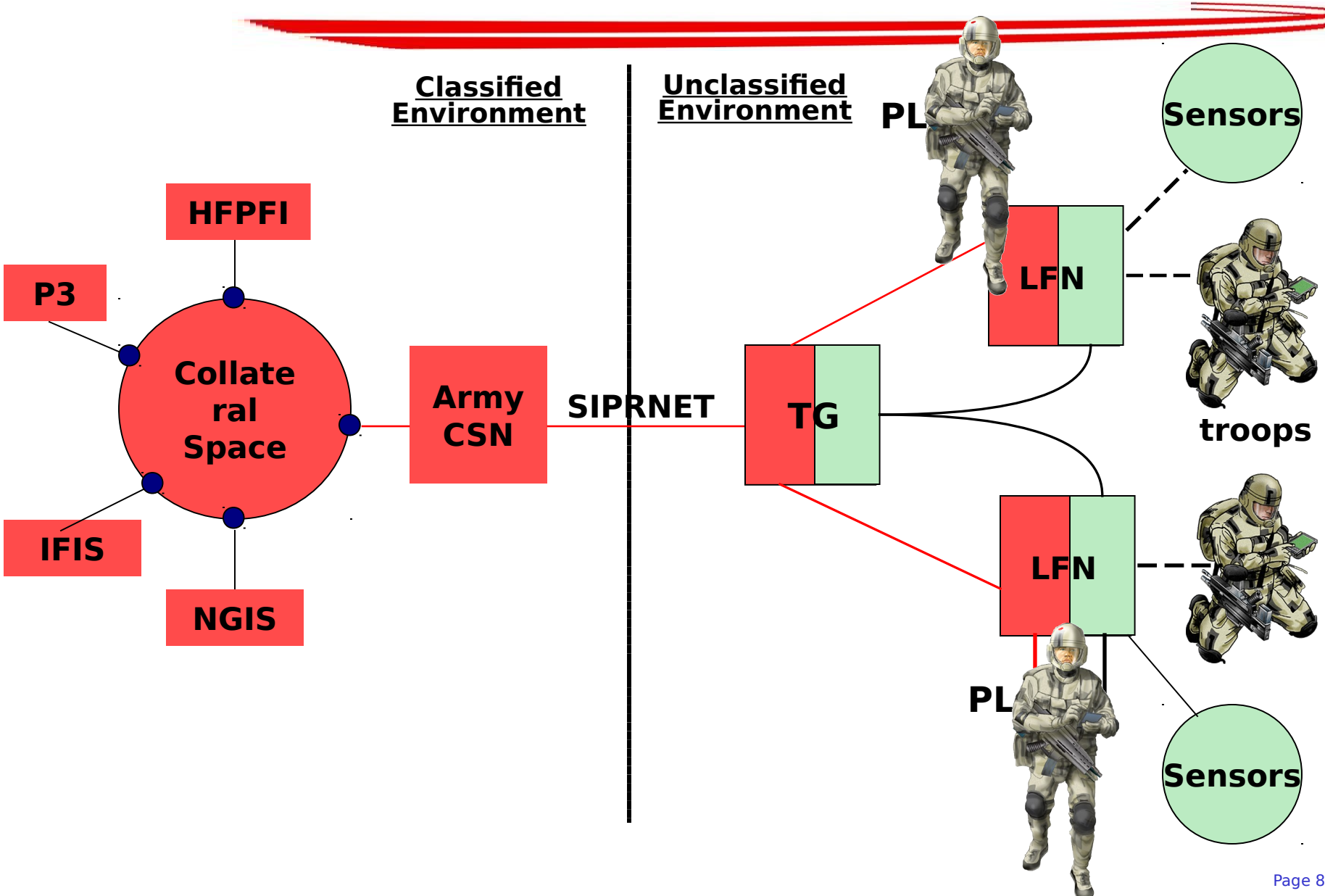
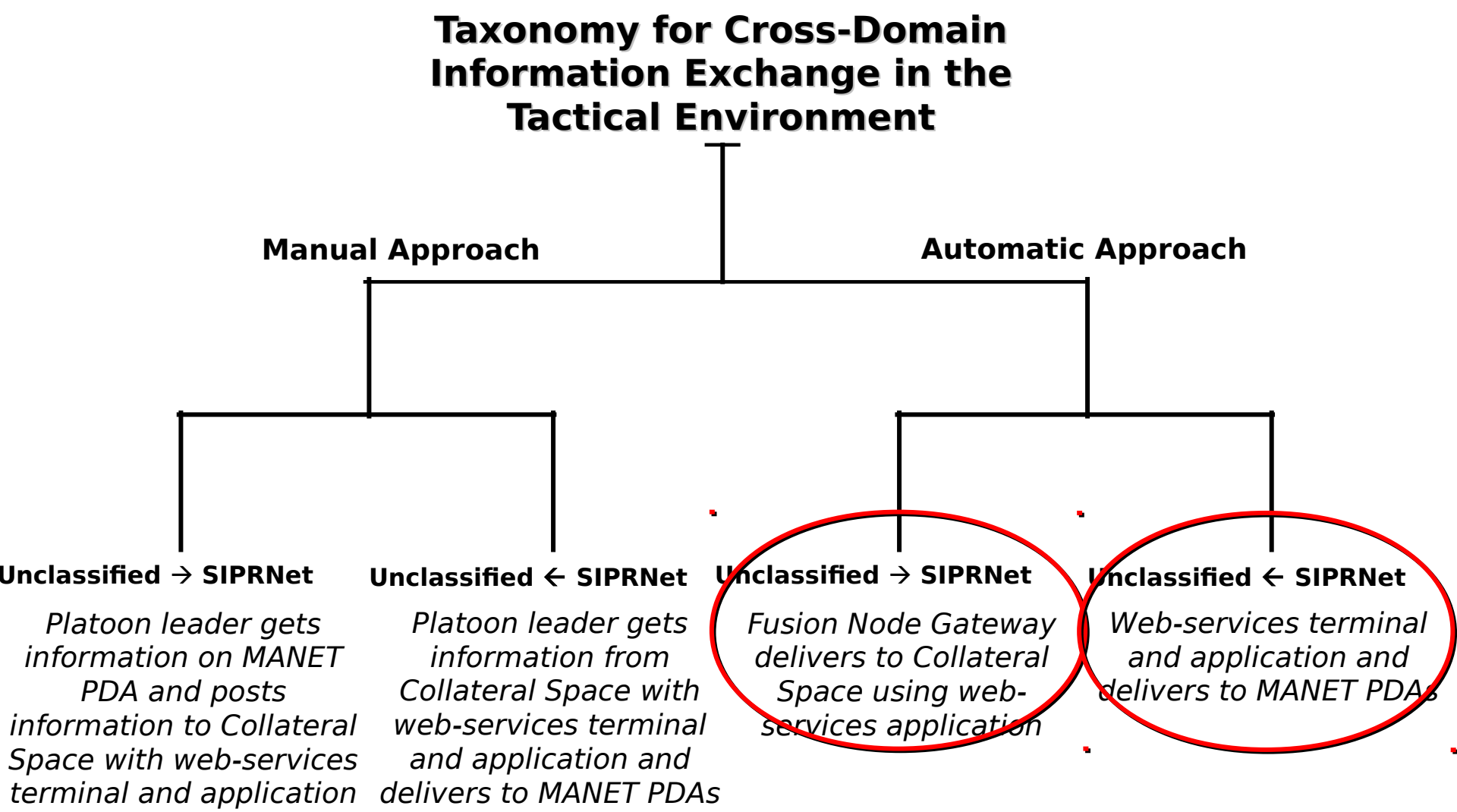
Key CDIX Security Requirements

- **Malicious Code Detection must be performed**
  - **To prevent and detect viruses, logic bombs, worms, etc.**
- **Metadata tagging with security labels**
- **Digital signature application and verification**
  - **Provision of Cryptographic integrity**
  - **Provision of Cryptographic authentication**
- **Preventing and detection unauthorized activity**
- **Mobile Code Verification must be performed**

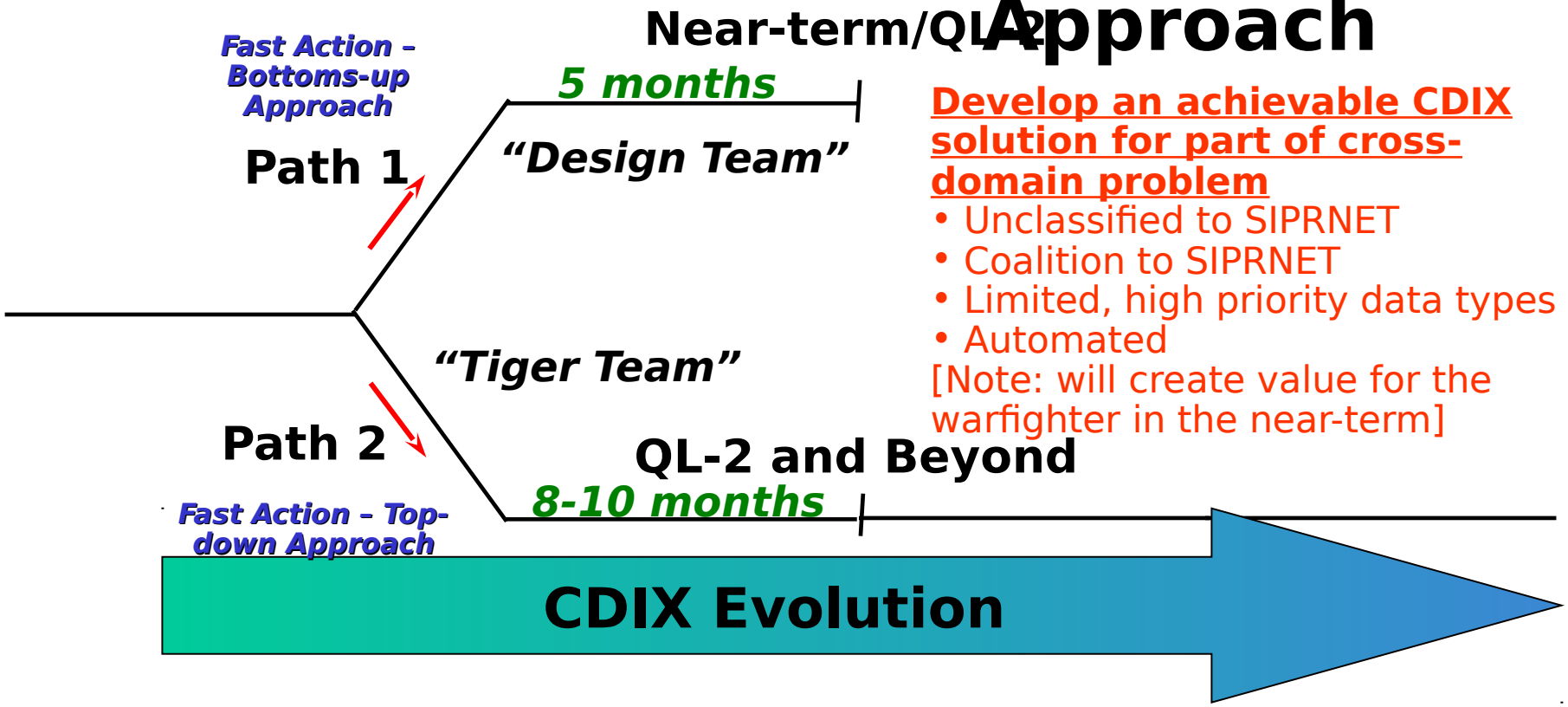
Tactical Scenario – to and from the Warfighter



CDIX for Tactical Environment


Taxonomy for Cross-Domain Information Exchange in the Tactical Environment
Manual Approach
Automatic Approach
Unclassified → SIPRNet
Platoon leader gets information on MANET PDA and posts information to Collateral Space with web-services terminal and application
Unclassified ← SIPRNet
Platoon leader gets information from Collateral Space with web-services terminal and application and delivers to MANET PDAs
Unclassified → SIPRNet
Fusion Node Gateway delivers to Collateral Space using web-services application
Unclassified ← SIPRNet
Web-services terminal and application and delivers to MANET PDAs

HF CDIX Strategy – Two-Pronged Approach



Develop an achievable CDIX solution for part of cross-domain problem

- Unclassified to SIPRNET
- Coalition to SIPRNET
- Limited, high priority data types
- Automated

[Note: will create value for the warfighter in the near-term]

Path 1 will leverage web-services and existing, known CDS solutions to provide partial solution for near-term (QL-2)

Path 2 will aggressively explore Content Staging CDIX solution and emerging CDS solutions to provide partial solution for beyond QL-2 – leveraging other DoD CDIX efforts and NCES

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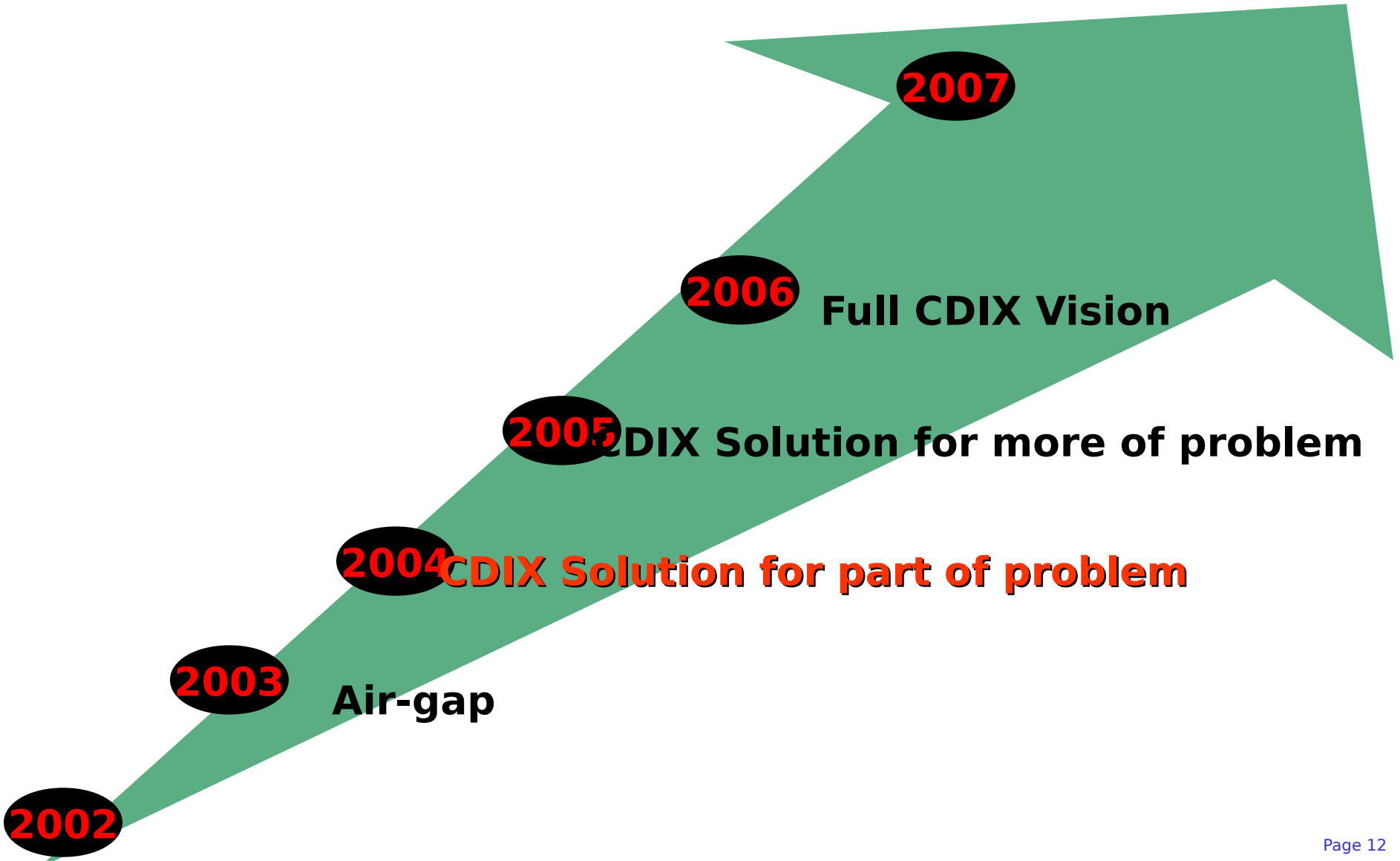
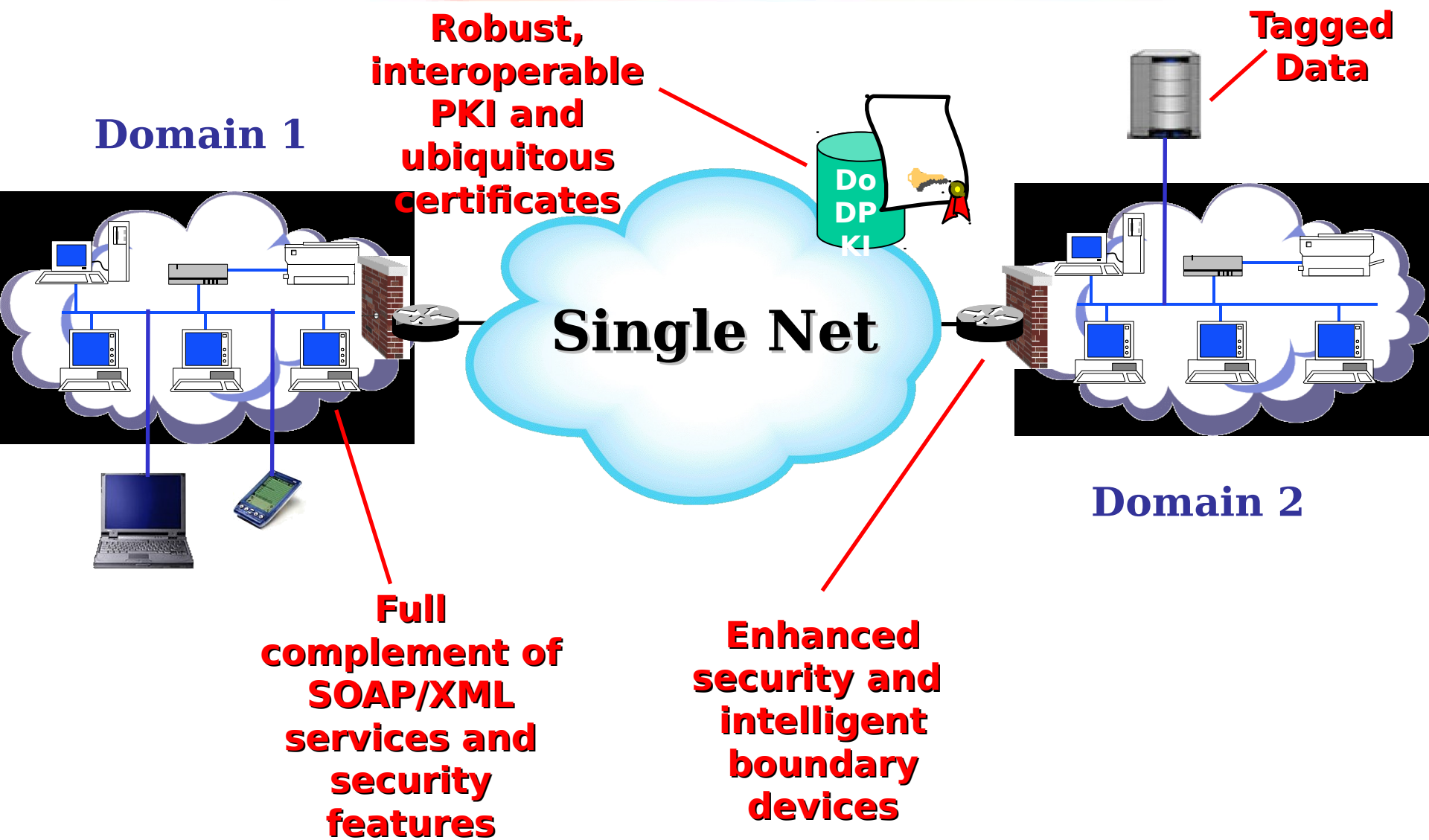
Key Points About Strategy

- **Provides a two-pronged approach for near-term and longer term**
- **Provides a path that is limited in scope and therefore achievable for this year – does not try to “boil the ocean”**
- **Will show significant value for the warfighter**
- **Is evolutionary in nature – towards the CDIX vision**
- **Will capitalize on our learning process**
- **Will capitalize on the maturation process of technology and policy**

CDIX Evolution



Vision for Cross-Domain Information Exchange



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“Some men see things as they are and say why. I dream things that never were and say why not.”

Robert Kennedy, 1925 - 1968
Senator and Presidential Candidate

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Presenter Information

Leslie D. Owens (Les)

Horizontal Fusion Management Team

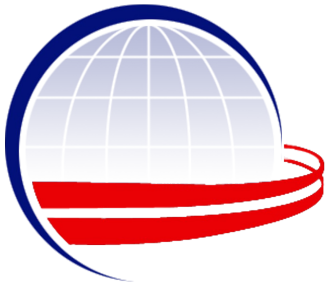
/ Booz Allen Hamilton, Wireless Security Lead

703/902-7091 (office)

703/980-3877 (cellular)

Owens_les@ bah.com (email)

Discussion



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